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November 29, 2005

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street SW  
Washington DC 20554

**Re: ET Docket No. 04-373**  
**SafeView, Inc., Request for Waiver of Sections 15.31 and 15.35 of the**  
**Commission's Rules**  
***Ex Parte Communication***

Dear Ms. Dortch:

On behalf of SafeView, Inc., pursuant to Section 1.1206(b)(1) of the Commission's Rules, I am electronically filing this written *ex parte* communication.

This responds to the recent joint filing of XO Communications, Inc. and Hughes Network Systems, Inc.<sup>1</sup>

SafeView has earlier answered most of the points that XO and Hughes raise.<sup>2</sup>

**A. SAFEVIEW DEVICE**

SafeView manufactures a product that reliably detects weapons or contraband carried on an individual's person, including both metallic and non-metallic objects hidden under the

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<sup>1</sup> Letter from Russell H. Fox to Ms. Marlene H. Dortch, Secretary, FCC (filed Nov. 18, 2005) (XO and Hughes November 18 *ex parte* filing).

<sup>2</sup> See Letter from Mitchell Lazarus to Marlene H. Dortch, Secretary, FCC (filed March 11, 2005); Letter from Mitchell Lazarus to Marlene H. Dortch, Secretary, FCC (filed Jan. 28, 2005); Reply Comments of SafeView, Inc. (filed Nov. 8, 2004).

clothing.<sup>3</sup> It can greatly improve security at airports, stadiums, government buildings, prisons, and the like. The efficacy of the device and the public interest in its use are not in dispute.

The SafeView device operates by briefly illuminating the subject with near-millimeter radio waves at very low levels and measuring the reflections.<sup>4</sup> The device contains two vertical masts about 1.5 meters apart, each carrying 192 transmit antenna elements arranged vertically. While the masts rotate around the subject over a 2 second interval, each antenna element in turn sweeps quickly from 24.25 through 30 GHz, taking 6 microseconds per sweep.

The frequency sweep is essential to operation of the device. The sweep both necessitates and justifies SafeView's request for waiver.

#### **B. WAIVER REQUEST**

SafeView seeks to certify its device under Section 15.209 of the Commission's Rules.

The Commission requires measurement of emissions from a Part 15 device over a 1 MHz bandwidth.<sup>5</sup> Because the SafeView device sweeps over a frequency range much wider than 1 MHz, and pauses between the end of each sweep and the beginning of the next, the signal is present in the measurement bandwidth only 1 / 8,850 of the time.<sup>6</sup> The average power over the 1 MHz bandwidth thus equals the power in the sweeping signal divided by 8,850.

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<sup>3</sup> SafeView, Inc., Request for Waiver at 5-8 (filed Aug. 18, 2004).

<sup>4</sup> The device meets the Commission's limits for human RF exposure by several orders of magnitude. *See id.* at 15.

<sup>5</sup> 47 C.F.R. Sec. 15.35(b) (at frequencies above 1 GHz).

<sup>6</sup> For details, see Letter from Mitchell Lazarus to Marlene H. Dortch, Secretary, FCC at 4-5 (filed March 11, 2005). This calculation averages over a time period of 0.1 second, as requested in Reply Comments of Winstar Communications, LLC at 5 & Annex 2 (filed Nov. 8, 2004).

More specifically, the maximum power of the sweeping pulse is 450 microwatts (−3.5 dBm). Dividing by 8,850 (−39.5 dB), the average power over a 1 MHz bandwidth is 50 nanowatts (−43 dBm). This is comfortably below the limit in Section 15.209.<sup>7</sup>

Section 15.31(c) of the Commission's Rules requires that average measurements on a swept frequency device be taken with the sweep stopped in the measurement bandwidth.<sup>8</sup> In the present case, this procedure exaggerates the actual average power by a factor of 8,850, or 39.5 dB.

SafeView has accordingly requested a waiver of Section 15.31(c) so as to report average emissions with the sweep running. This more accurately represents the device's interference potential. We also request a waiver of Section 15.35(b), which limits peak emissions to a level at 20 dB below the permitted average emissions.

SafeView has proposed the following conditions:

- All waived devices will be installed indoors, so that building attenuation will help to protect outdoor victim receivers.
- SafeView will limit waived installations to 100 units during the first year, and 200 units during the second year. We are prepared to discuss limits for subsequent years, if any interference concerns remain at that time.
- SafeView will maintain a database of installations to help identify the source of any interference (or, more likely, to rule out SafeView equipment as the cause), and will share this information with the Commission and NTIA.

#### **C. INTERFERENCE ISSUES**

The SafeView sweep range includes the 24 GHz and 28 GHz (LMDS) fixed service bands. The only opponents to the waiver are fixed service interests that filed to express concerns

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<sup>7</sup> That limit is expressed as 500 μvolts/meter measured at 3 meters, which is equivalent to 75 nanowatts or −41.3 dBm. 47 C.F.R. Sec. 15.209(a).

<sup>8</sup> 47 C.F.R. Sec. 15.31(c).

about interference into their systems. SafeView amended its calculations to address some of these issues and explained why others greatly overstated the likelihood of interference.

SafeView's combination of low power and indoor-only installation, together with high building attenuation above 24 GHz, limits plausible interference to one scenario: a case where the SafeView device and the fixed service receiver are both indoors, are both in the same room (such as an airport terminal), and the fixed service receive antenna is aimed close to the SafeView device. But two units operating in the same room are most likely under the control of the same entity, such as the airport authority. Thus, a facility using the SafeView device can cause interference only to itself. A grant of the waiver will allow such a facility to decide for itself whether to install the SafeView device, install a fixed service system, or take appropriate measures to operate both.

Fixed service licensees need not take SafeView's word on these issues. Providers and their customers can invoke an ironclad assurance against interference: **If SafeView's device causes harmful interference to a licensed service, the Commission's Rules require SafeView to cure the interference by any means necessary, and if that proves impossible, to cease operation altogether.**<sup>9</sup> Because the SafeView devices are large and conspicuous, few in number, operated at fixed locations, and listed in SafeView's database, they will be easy to locate, if necessary.

Any harmful interference that did occur in practice could probably be resolved by installing panels to provide shielding in the direction of the affected receiver, or by working with the fixed service user to reorient antennas. Such measures will be needed rarely, if at all. Proposals by XO and Hughes for SafeView to shield every installation in all directions, whether needed or not,<sup>10</sup> would add cost and reduce performance without providing any benefit in the vast majority of cases.

Because SafeView must correct any interference that occurs, a grant of the waiver entails no risk to fixed service operations.

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<sup>9</sup> "Operation of an intentional . . . radiator is subject to the conditions that no harmful interference is caused . . . ." 47 C.F.R. Sec. 15.5(b). "The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected." 47 C.F.R. Sec. 15.5(c).

<sup>10</sup> XO and Hughes November 18 *ex parte* filing, Attachment at slide 13.

**D. OPPOSITION AND RESPONSE**

The November 18 *ex parte* presentation of XO and Hughes mostly restates issues that have already been raised and answered.

**1. Potential for interference.**

XO AND HUGHES: "SafeView has made no meaningful attempt to reduce potential for interference."<sup>11</sup>

SAFEVIEW RESPONDS: SafeView designed its device so that the potential for interference is negligible. No "attempt to reduce" interference is needed.

XO AND HUGHES: "[Hughes] studied three path loss scenarios, which demonstrate that interference can occur to licensed receivers that are not necessarily co-located [in the same room as the SafeView device]."<sup>12</sup>

SAFEVIEW RESPONDS: One of Hughes' scenarios in fact assumed collocation in the same room.<sup>13</sup> The others postulated either an outdoor SafeView device, or an indoor device with an outdoor fixed-service receiver aimed at it through a glass window.<sup>14</sup> Our proposed waiver conditions would eliminate the outdoor device. Hughes' glass-window scenario is contrived and implausible in the extreme. So are supposed scenarios in which the signal is "enhanced" by reflections, multipathing, ducting, or diffraction.<sup>15</sup> Earlier suggestions from Hughes of interference due to reflection of the SafeView signal from water towers or bodies of water are similarly unlikely.<sup>16</sup>

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<sup>11</sup> *Id.* at slide 3.

<sup>12</sup> *Id.* at slide 6.

<sup>13</sup> Opposition of Hughes Network Systems, Inc. (filed Oct. 22, 2004) Exhibit 1 at 3.

<sup>14</sup> *Id.*

<sup>15</sup> XO and Hughes November 18 *ex parte* filing, Attachment at slide 7. All of these conditions would tend only to disperse the signal, not to enhance it.

<sup>16</sup> Letter from John P. Janka to Ms. Marlene H. Dortch, Secretary, FCC at 1 (filed Jan. 28, 2005)

XO and Hughes' current filing adds a few more scenarios for SafeView operation: in a building entrance; airport lobby and other buildings with large glass windows; open stadiums; convention centers; shopping malls; and outdoor use (such as DC mall celebrations and inaugural events).<sup>17</sup> The outdoor cases would be prohibited under our proposed conditions.<sup>18</sup> The indoor cases (convention center, shopping mall, etc.) presuppose operation in the same room, which places the SafeView and fixed service equipment under control of the same entity. A SafeView device in a building entrance would cause interference only to a receiver in sight of the device and aimed directly at it. We think this is so unlikely as to need no further consideration. But again, SafeView would have to correct any harmful interference that did occur.

## **2. Duty cycle**

XO AND HUGHES: SafeView's calculation of the duty cycle includes time the signal occupies a given spectrum, time a given antenna element transmits, and time the transmitting array faces a given direction. XO and Hughes add: "Only by creating this incorrect definition is SafeView able to assert that its request is based on waiver of measurement method, rather than a waiver of the emission limits."<sup>19</sup>

SAFEVIEW RESPONDS: SafeView earlier amended its calculation of the duty cycle in part to take account of opponents' objections.<sup>20</sup> Among other changes, we eliminated consideration of time the transmitting array faces in a given direction. The other two elements that XO and Hughes object to are within the most conservative definition of duty cycle.

## **3. Compliance under the Waiver**

XO AND HUGHES: "SafeView exceeds the limits by a factor of 13,000 (and transmission power must be reduced to 1/13000 to comply with FCC limits)."<sup>21</sup>

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<sup>17</sup> XO and Hughes November 18 *ex parte* filing, Attachment at slide 6.

<sup>18</sup> With respect to "inaugural events," we note the U.S. Government does not need Commission approval to purchase and use radio-frequency devices. 47 U.S.C. Sec. 302a(c).

<sup>19</sup> XO and Hughes November 18 *ex parte* filing, Attachment at slide 9.

<sup>20</sup> See Letter from Mitchell Lazarus to Marlene H. Dortch, Secretary, FCC at 4-5 (filed March 11, 2005).

<sup>21</sup> XO and Hughes November 18 *ex parte* filing, Attachment at slide 5.

SAFEVIEW RESPONDS: We have addressed this misstatement before.<sup>22</sup> The claim would be true only if SafeView operated *with the sweep stopped*. Although the Commission's Rules call for measurement with the sweep stopped, that is not how the device functions. As we noted above, the Commission's measurement procedure greatly overstates the device's emissions and its potential to cause interference. That is why SafeView requested a waiver. The fact that the signal sweeps in operation vastly reduces its impact on a receiver, a consideration that XO and Hughes consistently overlook.

#### 4. *Effect of collocated units*

XO AND HUGHES: "10 collocated units would compound the problem up to 10 times."<sup>23</sup>

SAFEVIEW RESPONDS: The cumulative effect of multiple units is not additive, as XO and Hughes assume. Each device is silent for eight seconds out of ten, and even during the two seconds that it operates, is silent for 64 percent of each 8.6 millisecond period. Also, because the antennas are directional and rotate during the two seconds of operation, the impact of one unit on a fixed service receiver -- if it occurs at all -- would be highly transitory. The likelihood of two units affecting the same receiver in the same passband during the same short time interval is negligibly low.

In any event, we do not foresee ten units collocated at a single site. These devices replace conventional metal detectors, and process people just as fast. A site with ten metal detectors in one place, if it exists, is an extreme rarity. Ten SafeView devices grouped together would be just as unusual.

Nonetheless, if collocated units did cause interference, SafeView would have to correct it.

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<sup>22</sup> Reply Comments of SafeView, Inc. at 7-8 (filed Nov. 8, 2004). The 13,000 figure cited by XO and Hughes is equivalent to a peak/average ratio of 41.3 dB, as used in an early SafeView filing. SafeView has since reduced its peak signal from 0 dBm to -3.5 dBm. The correct ratio between SafeView's peak emissions and the Commission's average limit is now [-41.3 dBm - (-3.5 dBm)], which is 37.8 dB or approximately 6,025. See *Letter* from Mitchell Lazarus to Marlene H. Dortch, Secretary, FCC at 4-5 (filed March 11, 2005).

<sup>23</sup> XO and Hughes November 18 *ex parte* filing, Attachment at slide 10.

**5.      *Limitation to indoor operation***

XO AND HUGHES: "Even if they are initially sold for indoor purposes, there is no way to restrict the re-sale or relocation of the devices."<sup>24</sup>

SAFEVIEW RESPONDS: Given that these are big, expensive machines, by their nature not portable and costing 5 to 10 times more than common metal detectors, we do not expect an active resale market. Nevertheless, in addition to labeling units for indoor use, and providing by contract that customers must install their units indoors, we can also require that customers impose similar conditions on resold units, if the Commission so mandates. If, despite all these precautions, a unit is nonetheless installed outdoors, the Commission can revoke its certification.<sup>25</sup>

**6.      *Coordination unneeded***

XO AND HUGHES: "[A]t a minimum, SafeView users should coordinate with affected LMDS licensees in advance of placement of device."<sup>26</sup>

SAFEVIEW RESPONDS: A SafeView device, and any fixed service systems it might affect, are very likely under control of the same entity. One need not coordinate with oneself.

It may be that XO and Hughes primarily want notice that a SafeView device will be operating in the vicinity, so they can investigate if interference occurs. That does not require coordination. A SafeView unit is a conspicuous object and hard to miss. In the unlikely event that one causes interference, it will necessarily be in plain view of the fixed service receiver. The fixed service user will know it is there.

**E.      CONCLUSION**

The SafeView device will offer new levels of confidence and security to travelers and prison personnel, among others. No other technology can deliver the same benefits.

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<sup>24</sup>      *Id.* at slide 15.

<sup>25</sup>      47 C.F.R. Sec. 2.939(a) ("The Commission may revoke any equipment authorization: . . . (2) If upon subsequent inspection or operation it is determined that the equipment does not conform . . . to the representations made in the original application.")

<sup>26</sup>      XO and Hughes November 18 *ex parte* filing, Attachment at slide 15.



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XO and Hughes' concerns are fully answered by two points. First, SafeView has committed to indoor-only operation, and will impose that obligation on its customers. This adequately protects all outdoor fixed service receivers, barring highly contrived scenarios. Interference from a SafeView unit can realistically affect only a fixed service receiver in the same room, and hence under control of the same entity. That entity should have the option to use either technology, or to take steps so as to use both. Second, if harmful interference does occur to a receiver in any licensed service, indoors or out, SafeView must fix the problem, and if it cannot, must turn off the offending device.

A grant of the waiver is very much in the public interest, and presents no threat to any licensed service.

Please do not hesitate to call with any questions.

Respectfully submitted

Mitchell Lazarus  
Counsel for SafeView, Inc.

cc: Courtesy service list

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